

REMARKS

Claims 1-77 are pending in the application and stand rejected.

Objection to the Abstract

The abstract is objected to for a spelling error. Applicants have corrected the spelling error as shown herein above.

Claim Objections

Claim 77 stands objected to for its dependency. Applicants have amended claim 77 to be independent.

Rejection under 35 U.S.C §112

Claims 8, 15, 46 and 53 stand rejected under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner finds that the phrase "at least substantial portion" renders the claims indefinite because it is unclear to the Examiner what portion of the block of ECC is considered to be substantial. Applicants have amended claims 8, 15, 46 and 53 to delete the term "substantial."

Rejection under 35 U.S.C §103

Claims 1-77 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,263,030 to Rotker et al. In particular, the Examiner finds that Rotker discloses the invention as claimed in claims 1 and 39 except for using a magnetoresistive storage device (MRAM). The Examiner further opines that magnetoresistive storage devices are well known in the art and therefore concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to ensure the memory device is capable of representing

different RAM memories. The Examiner believes this modification would have been obvious because the skilled person would have been motivated to employ various types of RAM memories for storing data and ECC codes to ensure all the data is stored. Applicants respectfully disagree with the Examiner's conclusion.

Applicants' invention is directed to minimizing certain failure mechanisms that are specific to magneto-resistive storage devices (and fully described from page 11, line 27 to page 12, line 27 of the specification). These failure mechanisms are different from those to which serially recorded data on a tape are subject because, for instance, failure can occur across both rows and columns. Rotker describes solely the use of error correcting codes to store data on a tape, and clearly states that the data is recorded serially onto the tape "in a long sequence of symbols" (col. 1, ll. 41-42). Rotker also describes the use of interleaving, which involves encoding into a single codeword data symbols which are recorded noncontinuously on the tape, so that each adjacent symbol of a datablock on the tape is in a different codeword and thus if a long burst error occurs, it is distributed among a number of code words and therefore does not exceed the error correcting capability of the code (col. 6, ll. 10-15). Rotker is thus mainly concerned with describing a technique whereby the calculation of such interleaved error correcting codes may be efficiently combined with the recording of the resulting data to tape so that the recording speed is increased (col. 2, ll. 6-10). Rotker does not in fact contain any teachings that would help one skilled in the art to understand the specific failure mechanisms of the MR storage array and how they may be managed. Thus, we submit that one skilled in the art who would attempt to modify the system of Rotker would not know how to arrive to the claimed invention.

The Examiner notes that the DRAM buffer shown in Fig. 1 of Rotker is schematically arranged as a matrix with the data blocks stored in rows for the storage of multi-symbol ECC blocks. Thus, the Examiner appears of the opinion that the skilled person would have been motivated to replace the DRAM of the buffer with an MR device and thereby arrive at the presently claimed invention. However, the only disclosure in Rotker directed to the storage of ECC data in this buffer is in Fig. 2 and the associated disclosure at column 4, which is merely a schematic representation and does not show the actual mapping of data to specific storage locations in the DRAM. To make the differences between the claimed invention and the disclosure of Rotker clearer and even less ambiguous, Applicants have amended claims 2 and 40

to incorporate the limitations of claims 1 and 39 respectively (and have canceled claims 1 and 39), and thus specify that a plurality of bits from each multi-bit symbol are stored in the same one of the rows. Applicants respectfully submit that Rotker does not in fact teach using multi-bit symbols to form ECC encoded data, and thus also does not provide any teaching whatsoever regarding the actual placement of these bits in the buffer. Rotker, of course, has no reason for discussing bit placement because his invention is directed to storing data on a tape in a certain fashion; the description of using a DRAM buffer is merely incidental to the storing of data onto tape within the context of Rotker, and there is no disclosure whatsoever related to error control in this buffer. Applicants respectfully remind the Examiner of the requirements posited by MPEP 2143.03 that “[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).” (emphasis added) The Examiner has not made, and indeed cannot make, a *prima facie* showing that Rotker teaches all claimed limitations so as to make the substitution of MR for DRAM in Rotker obvious. Applicants therefore submit that claims 2 and 40 as amended herein are allowable and respectfully requests the Examiner to reconsider and pass the claims to issue.

Claims 3-38 depend from claim 2, and claims 41-76 depend from claim 40. “If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, in light of the above discussion of claim 1, Applicant submits that claims 3-38 and 41-76 are also allowable.

Claim 77 has been amended to contain the same limitations as amended claim 40, and Applicants thus submit that this claim is also allowable.

Regarding the prior art made of record by the Examiner but not relied upon, Applicants believe that this art does not render the pending claims unpatentable.

In view of the above, Applicants submit that the application is now in condition for allowance and respectfully urge the Examiner to pass this case to issue.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 08-2025. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 08-2025.

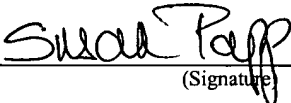
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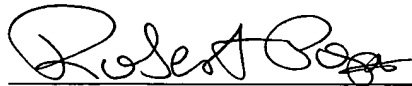


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(Date)

Respectfully submitted,



Robert Popa

Attorney for Applicants

Reg. No. 43,010

LADAS & PARRY

5670 Wilshire Boulevard, Suite 2100

Los Angeles, California 90036

(323) 934-2300 voice

(323) 934-0202 facsimile

rpopa@ladasparry.com